

## **Response to Comments Beaumont-Port Arthur Attainment SIP**

The South East Texas Regional Planning Commission (SETRPC) expressed its support for the proposed attainment demonstration SIP, stating that with recent ambient monitoring data showing a 1-hour ozone design value of 0.129, the BPA area is closer than ever to achieving monitored attainment. SETRPC further commented that implementation of the SIP control measures, which calls for industrial NO<sub>x</sub> emission limits that are as stringent, or more so, than anywhere in the United States outside of California, will provide for attainment of the 1-hour and 8-hour ozone standards.

**The commission appreciates the support, and acknowledges the important role SETRPC has played in developing the current attainment demonstration SIP.**

An individual commented that the incidence rates of certain types of cancer in the BPA area are above normal, and are associated with the high emission rates of toxic chemicals and other pollutants in the area. The individual further commented that emissions data needs to be stored in an easily accessible and usable database, and also commented on the need for more intense investigation by the Beaumont Regional Office when upset releases occur.

**The current attainment demonstration SIP for ozone is designed to reduce ground-level concentrations of ozone, which does have important health effects. However, there is no evidence that ozone causes or contributes to cancer. The commission actively investigates and enforces incidents leading to excessive emissions, regardless of the type of pollutant involved. The TCEQ maintains publicly available databases which report emissions data and enforcement actions.**

Community In-Power and Development Association (CIDA) commented that various air pollutants emitted in the BPA area are respiratory irritants and cancer-causing agents. CIDA further commented that the current SIP does not require any new reductions in VOC or highly reactive VOC emissions. CIDA commented that the proposed SIP must ensure that the Clean Air Act is fully enforced in the BPA area.

**Attainment of the ozone standard should ensure a lower incidence of the health conditions associated with ozone. With regard to new VOC reductions, the commission's analysis did not indicate the need for further VOC, or specifically, HRVOC, reductions, to demonstrate attainment. However, considerable reductions in VOCs have been achieved over the years through the implementation of rules under 30 Tex. Admin. Code Chapter 115. The current SIP is fully enforceable on the state level, and upon approval by EPA, on the federal level as well. All rules and requirements of the SIP are enforced.**

Sierra Club-Lone Star Chapter commented that the BPA area is ignoring the obligation to prepare a 1-hour ozone attainment demonstration, and instead has chosen to complete an 8-hour plan which is a "more hollow approach." The commenter further stated that EPA's revocation of the

1-hour ozone standard is not scheduled to occur until June 15, 2005, and that until that time the standard applies. BPA's revised classification to "serious" includes the requirement that the State adopt and submit to EPA a SIP that satisfies "serious" area requirements, including a modeled attainment demonstration.

**The commission disagrees. With the current SIP revision, the commission is providing the majority of the required elements for an approvable 1-hour attainment demonstration. The staff is preparing the remaining components, determination of RACT compliance and RACM analysis, for the commission's consideration shortly after the adoption of the current SIP revision. All requirements for an attainment demonstration for serious areas will be addressed. Furthermore, the commission does not agree that addressing the more protective 8-hour ozone standard represents a "more hollow approach." Section 51.905(a)(ii) of EPA's 8-hour Implementation Rule gives states with outstanding 1-hour ozone SIP obligations the option to submit one of the following to EPA by June 15, 2005: 1) a 1-hour attainment demonstration, 2) a 5% Increment-of-Progress plan providing for 5% reductions from a 2002 baseline, to be achieved by 2007, or 3) an 8-hour attainment demonstration. The commission is addressing this requirement by selecting the third option, to submit an 8-hour attainment demonstration by June 15, 2005. In addition to the 8-hour attainment demonstration, this SIP revision contains a modeling analysis showing attainment of the 1-hour ozone standard by 2005, using the Relative Reduction Factor (RRF) technique contained in EPA's modeling guidance. Using this approach, commission staff estimated the design value for 1-hour peak ozone in 2005 to be 121 ppb, which is below the 125 ppb value for attainment.**

Sierra Club-Lone Star Chapter commented that it supports the continued NOx reductions from 2000 to 2007.

**The commission appreciates the support.**

Sierra Club-Lone Star Chapter commented that the BPA SIP does not comply with the FCAA requirements to propose SIP measures as expeditiously as possible, and objected to the delay in attainment until 2007.

**Section 172(c)(1) of the FCAA Amendments, regarding attainment plan provisions, reads, "Such plan provisions shall provide for the implementation of all reasonably available control measures as expeditiously as practicable," [emphasis added], not "as expeditiously as possible." The commenter provides no justification for the conclusion that the SIP measures are not being implemented expeditiously. The commission believes that the SIP contains all measures that can be reasonably implemented to ensure expeditious attainment of the ozone standard.**

Sierra Club-Lone Star Chapter expressed support for the Agreed Orders being adopted by the commission to make certain local voluntary reductions enforceable.

**The commission appreciates the support. It should be noted that the current SIP revision**

**does not concern the referenced Agreed Orders. A separate revision to the SIP has been proposed to incorporate the Agreed Orders. The commission has scheduled a public hearing in Beaumont on October 7, 2004, and plans to consider adoption of the orders in December 2004.**

EPA commented that two VOC source categories include a 100 tons per year exemption: shipbuilding and repair, and batch processing. EPA stated that the emissions inventory must be examined to determine if there are any other source categories covered by Control Techniques Guidelines (CTG) or Alternative Control Techniques (ACT) documents, or any sources not covered by CTG/ACT, which are above the current 50 tons per year major source threshold. If rules or negative declarations are required, these must be submitted as a SIP revisions following a 30-day public comment period and hearing.

Sierra Club-Lone Star Chapter commented that new additional RACT measures were not included in the BPA SIP.

**The commission plans to propose a SIP revision containing rulemaking and negative declarations as appropriate to meet the outlined requirements. The commission staff is preparing proposal recommendations for the commission's consideration shortly after the current attainment demonstration SIP has been adopted. With regard to additional RACT requirements, EPA has already made a determination in earlier SIP approvals that the BPA area meets RACT requirements for all source categories, for the major source levels applicable at the time. With the upcoming SIP action to lower the exemption thresholds or provide negative declarations, all RACT obligations will have been met.**

EPA commented that the FCAA requires that all nonattainment plans provide for the implementation of Reasonably Available Control Measures (RACM), and that TCEQ must perform an analysis of all available NO<sub>x</sub> and VOC control measures to determine whether it is feasible, economical, and able to be adopted and implemented in time to advance the attainment date from 2007 to an earlier year. EPA commented that the RACM analysis must contain a listing of each control measure and an evaluation as to whether it is reasonably available. EPA further commented that the TCEQ must address and take comment on whether any VOC controls might be RACM, in particular controls on cooling towers and flares.

Sierra Club-Lone Star Chapter commented that the BPA SIP "appears to be bootstrapped" largely from the HGB SIP, with limited BPA-specific analysis. Sierra Club commented that the 1-hour BPA SIP issues are missing because TCEQ opted to do an 8-hour plan, and specifically referred to the lack of RACM control measures.

**The commission plans to propose an additional SIP revision to incorporate the RACM analysis. The commission staff is preparing proposal recommendations for the commission's consideration shortly after the current attainment demonstration SIP has been adopted. The commission disagrees that there is limited BPA-specific analysis. All the required elements of the attainment demonstration, including documentation of RACT compliance and the RACM analysis, relate specifically to the BPA area.**

EPA commented that the March 30, 2004 bump-up of BPA from moderate to serious triggered the failure-to-attain contingency measure outlined in the existing BPA SIP, and that this is a mandatory requirement of the FCAA. EPA further commented that if the state decides not to implement the current contingency measure, then it must be replaced by a substitute measure. Any such substitute measure must be adopted and submitted as a SIP revision after public comment and hearing, and this measure must achieve equivalent reductions to those which would have occurred with the implementation of the triggered measure, marine vessel loading. EPA further commented that the triggered contingency measure must be back-filled, and the TCEQ must adopt and submit the back-fill contingency measure as a SIP revision after public comment and hearing.

**The commission recognizes the need to implement contingency measures under FCAA, but does not believe that implementation of the adopted rule for marine vessel loading represents the best solution for meeting the BPA area's air quality goals. The commission plans to commit additional resources to the Texas Emissions Reduction Program (TERP) to achieve reductions equivalent to the adopted contingency rule. The commission will also propose repeal the contingency rule for marine vessel loading shortly after the current attainment demonstration SIP has been adopted, but no later than early 2005.**

EPA commented that TCEQ is apparently re-evaluating the State's Clean Fuel Fleets Program for any updates or changes that may be necessary to comply. When the Texas Clean Fuel Fleets Program was approved by the EPA in the Houston/Galveston and Dallas/Fort Worth nonattainment areas, the State was required to provide an analysis of how offsets were achieved to provide equivalent emission reductions between the State's Clean Fuel Fleet program and the Federal requirements for the Clean Fuel Fleets Program, and EPA stated that this should be considered as the State evaluates its program for BPA. EPA commented that Texas has two alternatives: 1) propose to option out of the Federal Clean Fuel Fleets program and provide an analysis of how offsets will be achieved to provide equivalent emission reductions, or 2) evaluate the State's clean fuel fleet program against the implementation of Tier II Standards for new vehicles, and the reductions accrued by purchasing new vehicles which currently comply with the Tier II standards. Either analysis and documentation must be submitted to the EPA as a SIP revision after public notice and comment.

**The FCAA Amendments of 1990 required states to implement the Federal Clean Fuel Fleet (FCFF) Program in nonattainment areas rated serious and above for ozone and carbon monoxide. Texas substituted what is now known as the Texas Clean Fleet (TCF) Program in place of this Federal Program for the DFW and HGB nonattainment areas as required by CAAA . The Legislature codified the requirements for the TCF program in Chapter 382, Subchapter F, of the Texas Health and Safety Code. Affected local government, private and transit fleets must acquire fleet vehicles certified by the EPA to meet or exceed the low emission vehicle (LEV) standards. The TCF Program is required to achieve emission reductions equivalent to the federal program.**

**The new federal TIER II emission standards will be implemented starting with the 2004**

**model year (September 1, 2003) for all motor vehicles with a gross vehicle weight rating (GVWR) of up to 10,000 lbs. Under the TIER II program, automotive manufacturers will be required to produce vehicles that achieve an average NOx standard of 0.07 grams per mile (g/mi) which is much more stringent than the LEV standard of 0.3 g/mi) required for the TCF program. EPA has since published new emission standards for heavy-duty diesel and heavy-duty gasoline engines, as well as light-duty vehicles. Therefore, vehicles certified to these new standards are considered acceptable for meeting the requirements contained in Part 88 for the Clean Fuel Fleets Program. Beginning with model year 2004, there are not any creditable reductions achievable from the TCF or FCFF programs.**

**In addition, new tighter federal emission standards for heavy-duty (greater than 8500 GVWR) motor vehicles that have been implemented with the 2004 model year, and will once again be tightened with the 2007 model year, require heavy-duty vehicles to meet an emission standard that is cleaner than the minimum heavy-duty LEV standards required by the TCF program.**

**Therefore, the above mentioned combined with the pending redesignation of BPA below serious for the 8-hour standard, the State of Texas feels the implementation of the 2004 Federal TIER II and Heavy-Duty emission standards more than demonstrates equivalency with the FCFF Program.**

EPA recognized that the TCEQ has submitted a PAMS plan to EPA and established a PAMS monitor at the Jefferson County Airport, and stated that it is reviewing the plan for acceptability. If the plan is acceptable, EPA is required to publish a Federal Register notice proposing to approve the PAMS plan and offer a public comment period.

**The commission continues to work with EPA to ensure that the PAMS plan for the BPA area is acceptable.**

The EPA commented that the TCEQ's projection of future design values in the proposed attainment demonstration indicates that the Beaumont/Port Arthur area will attain the ozone standard by 2007. The EPA stated, however, that TCEQ's initial 8-hour modeling raises uncertainty whether the control strategy will be successful in bringing the Beaumont/Port Arthur area into attainment by 2007. The technical uncertainties include such factors as local representativeness of episodes, emission inventory estimates, underprediction, chemical reaction rates, base-case performance, future year utilized for attainment, and attainment determination methodologies. The EPA stated that they will be meeting with the TCEQ staff in the near future to discuss the details. The EPA believes that the State is moving forward in good faith to develop a viable SIP following the 8-hour ozone Implementation Rule/Phase 1 and to submit an attainment demonstration by the due date of June 15, 2005, as required for a transition area. Timing or scientific constraints may make it more difficult for the State to address all of EPA's modeling concerns directly, however. The EPA noted that while they work with the State to address the uncertainties and see what can be done and submitted by the legal deadline, it may

also be better for the State at this point to provide a different type of safety margin in the attainment demonstration. This safety margin could be a commitment to adopt additional control measures or adoption of measures that TCEQ could implement quickly, if the area fails to attain in 2007. These approaches seem particularly prudent because of the short amount of time that will be available if the area fails to attain and is reclassified to moderate and must attain by 2010.

**The commission looks forward to working further with the EPA to address technical uncertainties in the modeling and agrees that it may be better at the present time to provide a safety margin in the attainment demonstration in the way of additional control measures that could be implemented quickly if the area fails to attain by 2007. The commission has identified additional measures consisting of more stringent point source NO<sub>x</sub> controls and commitments for further reductions under the TERP grant incentive program.**

Sierra Club-Lone Star commented that the two modeled episodes were August 19 - September 6, 2000, which occurred during the 2000 Texas Air Quality Study (TexAQS 2000), and August 12-13, 2000, which took place prior to the study. Concerns were raised about the representativeness of the chosen episode days. Sierra Club stated that the episode 8/30-9/1/2000 was a “rare” multiday episode during which the transport circulation was so well established that the effects of upwind HGB emissions reductions would be overstated. The commenter noted that this condition was unusual. Sierra Club asked how much of the transport from Houston contained VOCs and NO<sub>x</sub> from the BPA region as return emissions.

**The specific procedures used by the commission are described in detail in Section 3.3 of the SIP proposal. The objective of the selection process is to choose periods of high ozone described by the area’s conceptual model (SIP Appendices A, A1 and A2). The representativeness of an episode is reflected in the meteorological conditions associated with high ozone for the area of interest. EPA’s guidance indicates that additional emphasis may be placed on episodes that occur during field studies, since the availability of a rich set of data for input to the model should increase the reliability of the modeling results.**

**Ozone episodes in BPA are generally either locally-generated or associated with transport, and occur primarily during August and September. Modeling of both local and transport episodes is crucial for understanding and addressing the BPA ozone problem. The August 12-13, 2000 episode is characterized as a local event, while the August 30-September 1, 2000 part of the second episode is characterized as a transport regime.**

**While the commission acknowledges that the number of consecutive days of transport during the transport episode was unusual, the commission does not share the commenter’s concern that transport is “overstated.” In fact, the commission believes that the greater number of days of transport modeled (or any episode regime), the greater the reliability of the modeling results. That is, the same type of days (transport in this case) will show the same type of response to controls placed into the model.**

**Regarding the commenter's question on "return emissions" from BPA, the only day when there was noticeable flow from BPA to Houston was September 6, 2000. However, this was the last day of the episode, and none of the BPA emissions returned to the area by the end of the episode.**

Sierra Club-Lone Star commented that the commission selected a local episode day of August 12, 2000 with a monitored ozone peak of 126 ppb, reasonably close to the 120 ppb standard, and extremely close to the 'rounded' 125 ppb ozone concentration that the commission and EPA Region 6 contend represents attainment of the 0.120 ppb standard. Sierra Club stated that there are other local episodes with higher observed ozone concentrations, and provided examples. The commenter noted that during 1997-2002, a total of nine other specific days have a higher peak concentration than the 126 ppb on the selected day. The commenter stated that if the August-September 2000 multi-day episode were excluded, the 1998-2004 high ozone average over sixteen single hourly peaks would be 134 ppb, which is well above the 126 ppb selected for the local episode modeled.

**The commenter has not demonstrated that the example high ozone concentrations were local in nature. However, a review of the commission's 1-hour ozone data shows that at least six of the example days listed by the commenter were transport days; thus, the calculation of 134 ppb provided by the commenter would not be representative of local ozone days.**

**Although the commission acknowledges the concern expressed by the commenter, the commission notes that the 1-hour ozone analysis provided in the SIP proposal is intended only to be an assessment of progress toward improving air quality, not an attainment demonstration. The 1-hour analysis in the proposal shows net air quality benefits due to emissions reductions occurring after the base year, rather than serving as a 1-hour attainment demonstration.**

**The temporal proximity of the start of TexAQS 2000 to the August 12, 2000 episode played a major role in the commission's decision to model this day for the 1-hour analysis. EPA's 1991 photochemical modeling guidance states that States should strongly consider episodes that occur during field studies (such as TexAQS). Since special hourly inventories were collected for both BPA and HGB for the study period, and since August 12 was so close to the start of the TexAQS special inventory period, much better confidence could be placed in emissions developed for August 12, and thus better confidence in the modeling results.**

**Episodes had to be selected in early 2003 in order for the modeling to be conducted in a time frame to meet regulatory deadlines. This eliminated all 2003 and later episode days from consideration. For days that occurred during the period 1998-2002, the availability of the TexAQS data set put a higher priority on those calendar year 2000 episode days than on all others.**

Sierra Club-Lone Star stated that the average peak 1-hour ozone exceedance for the twenty-six BPA monitoring observations (from 1998-2004) was 134 ppb, well above the 126 ppb modeled for the August 12, 2000 episode. Twenty-two, or 85%, of the twenty-six monitoring stations with high ozone observed ozone concentrations above the 126 ppb modeled for August 12, 2000. Fifteen, or 79%, of the nineteen episode days had peak monitored ozone that was above 126 ppb. During each year since 1998 through 2004, the BPA region has observed at least one or more hourly ozone episode above the 126 ppb monitored on August 12, 2000, the day the commission modeled.

**The commission believes the commenter has calculated the exceedance statistics based on a combination of local and transport days, yet compared the statistics to the peak monitored value for a local episode day. Thus, the statistics do not appear to be meaningful. The commission acknowledges the commenter's concern about the monitored peak on August 12, 2000 relative to other days, but reiterates the importance of the field data from the TexAQs 2000 study to the reliability of the modeling results. The 1-hour analysis in the proposal shows net air quality benefits due to emissions reductions occurring after the base year, and is an assessment of progress toward improving air quality.**

Sierra Club-Lone Star stated a concern about an apparent conflict in design value trends based on 1-hour and 8-hour ozone data. Sierra Club noted that the trends analysis results show that 1-hour ozone design values for BPA have been declining, but that 8-hour design values have remained constant or increased. Sierra Club stated that, for 1998-2000, the CAMS 640 monitor at Sabine Pass in West Port Arthur had by far the highest 1-hour design value (145 ppb) and 8-hour design value (95 ppb), which is not surprising since it is the closest CAMS site to the major refining-petrochemical complex in Southwest Port Arthur (Motiva and Premcor refineries; and Huntsman's and Chevron Chemical's petrochemical plants). The commenter then stated that the second-highest 1-hour and 8-hour design values were for CAMS 643 at the Jefferson County Airport, which is several miles downwind of the Southwest Port Arthur and Northeast Port Arthur petrochemical-refining complexes. CAMS 643 had 1-hour and 8-hour design values of 137 ppb and 92 ppb respectively. Sierra Club then noted that the third highest 1-hour and 8-hour design values were for CAMS 2 at Beaumont (also in Jefferson county), which is directly downwind of the Exxon-Mobil refining petrochemical complex and downwind of the West/East Port Arthur and East Port Arthur petrochemical-refining complexes. CAMS 2 had 1-hour and 8-hour design values of 129 ppb and 86 ppb, respectively. Sierra Club commented that the other CAMS sites showed 1-hour and 8-hour design values below the NAAQS standards because they are further away from the large industrial plants in the BPA region.

**The commission agrees that while 1-hour design values have decreased over the last few years, 8-hour design values have stayed somewhat flatter. However, when BPA point source NOx rules are fully implemented by 2005, the 8-hour design value is expected to decrease. This phenomenon should be even more noticeable by full implementation of point source NOx and HRVOC rules in HGB.**

**The SETRPC Sabine Pass monitor (CAMS640) is not the closest monitoring site to the Premcor/Motiva/Chevron/ Huntsman complexes; the closest CAMS site is Port Arthur West (CAMS 28). However, the Sabine Pass site has the highest design value for BPA because it receives ozone and precursors transported from a number of source areas.**

Sierra Club-Lone Star commented that boundary condition assumptions raise significant technical concerns in the modeling sensitivity analyses. The commenter stated that the appropriateness of applying "DFW boundary conditions" (with large Ellis county sources generally upwind of the three county 1-hour nonattainment area) to BPA is questionable. The commenter further noted that the commission recognized modeling problems with the "unexpectedly large sensitivity of ozone concentration" in the DFW and east Texas areas. Sierra Club stated that as a result, the commission decided to replace default ("clean") boundary conditions with boundary conditions more representative of rural pollutants levels along the regional boundaries.

**The commission believes the commenter may misunderstand the utilization of boundary conditions in the modeling. The "DFW boundary conditions" refer to a study conducted by Environ that evaluated ozone impacts for the DFW area. Boundary conditions are values of atmospheric constituents located along the boundary of the modeling domain. In this case, these were boundary conditions for the 36 km x 36 km grid cell sized domain. As shown in Figure 3-1 in the SIP, this domain's boundary extends north past the Kansas/Nebraska state line; east to Georgia and the western tips of the Carolinas; south into Mexico; and west to roughly Big Spring, Texas. Within this domain (as well as the 12 km and 4 km subdomains), emissions for all source categories (including sources in Ellis County) were processed and explicitly modeled in the photochemical model CAMx. The boundary conditions developed by Environ for the 36 km domain are more technically appropriate than the default boundary conditions, because they are based on actual measurements of ozone and ozone precursors.**

Sierra Club-Lone Star stated that the comparison of ozone concentration predictions versus observations in the 2004 BPA SIP disclose that the model appears to systematically under-report the highest observed ozone concentrations, for both 1-hour and 8-hour data. Only in a single case did the model predict higher peak concentrations than observed, CAMS 9 on August 31.

**The objective of the model base case performance evaluation is to determine if the model is generating enough ozone and replicating ozone production and patterns at monitoring sites. EPA's performance criteria for unpaired peak accuracy and normalized bias allow both positive and negative variance, indicating that the model may under-predict yet still be acceptable for regulatory purposes. As noted in Section 3.7 of the SIP, the modeling did have some days in which performance was slightly out of bounds (notably 1-hour and 8-hour under-prediction on August 30 and 8-hour over-prediction on September 6 ), but an analysis of time series and modeled ozone animation indicated that the model replicated the general rise and fall, as well as the "shape" of the temporal and spatial ozone**

characteristics.

**The photochemical model was used in a relative mode for demonstrating attainment of the 8-hour ozone standard, and for the assessment of air quality improvement relative to the 1-hour standard. That is, the future case inventory (with controls) was run and the ratio of the future predicted ozone was divided by the base case predicted ozone. This is referred to as the relative reduction factor (RRF). The RRF for each station was then multiplied by each station's design value in order to estimate a future design value for the station. This process is fully described in Section 3.8 of the SIP proposal.**

Sierra-Lone Star commented that it has a major concern about the underlying accuracy of the emissions inventory for BPA, particularly for VOCs from major point sources. The specific concern is that there are likely to be large volumes of unreported VOCs and highly reactive VOCs (HRVOC) such as flares, cooling towers, process vents, fugitives, and other plant areas. Numerous BPA area major point sources are known to be significant emitters of HRVOC due to the large number of oil refineries and chemical/petrochemical plants in the three county region. While the TCEQ collects EI questionnaires from all major point sources for all emissions generating units and emission points, significant errors are occurring in the emission estimates provided by the plants because they lack adequate actual monitoring data of actual emissions from flares, cooling towers, process vents, fugitives and other plant areas.

Sierra-Lone Star also commented that recent aerial monitoring flyovers in 2003 and 2004 of BPA industrial plants support the fact that the current BPA EI does not reflect actual emissions of all VOCs and HRVOCs from major point sources by several orders of magnitude. This results in the overall BPA emissions summary containing significant errors in the VOC budget.

Sierra-Lone Star also commented that they have another concern over the accuracy of the 2000 VOC figure of 68 TPD from BPA's many major point sources, a figure which is probably significantly higher. In the Houston area, HRVOCs were observed in the aerial flyovers at 6X-12X higher than the EI reported levels used in the smog modeling. Smog-forming and toxic gases were "consistently" measured at levels three to 10 times greater – and in some cases "100 or more [times] greater" – than local oil refineries and chemical plants reported releasing, according to a recent analysis of the Houston findings by federal, state and academic experts. The 2000 study of Houston's air quality scientifically revealed for the first time that operators of petrochemical plants and refineries in the city's vast industrial complex had been significantly underestimating for years emissions of VOCs in required annual EI reports to TCEQ. The point is that the HRVOCs in the BPA region could easily [be] as high as Houston's - 6X-12X or higher - than the 2000 EI summary suggests. TCEQ does not even state how significant the errors are in the VOC inventory but clearly the error is not small.

Sierra-Lone Star commented that in Chapter 2, Section 2.8 Emissions Summary (p 23), the 2000 BPA EI Summary shows 68 tons per day for major point sources and the 2007 projects precisely 68 TPY for the same major point sources. The contention is that the 68 TPD estimate is a

serious error of under-reporting by industry in the BPA EI due to the failure to require industry to properly monitor, properly calculate and thereby include all VOCs and HRVOCs that are not being accounted for in the BPA EI.

**While the commission agrees that emissions inventories are not exact quantitative replications of all industrial emissions, the commission relies on annual, ozone season, special hourly, hourly Acid Rain CEMS, and emission events data reported by the industry for the modeling inventories. These inventories are the best information that is available.**

**In addition to these inventories, substantial ambient data were collected by aircraft and other measurement methods during the Texas Air Quality Study 2000. This information was analyzed by the scientific community, which then provided corroboration of the under reporting of VOCs for industrial sources in the HGB area. Also, recent scientific evidence indicates that a combination of aggressive point source NO<sub>x</sub> and HRVOC controls is the most effective means to reduce ozone concentrations in the HGB area. However, the study did not include the BPA area so it is difficult to quantify the magnitude of under-reported emissions in the area. The next field study, scheduled for 2005/06, will be expanded to include this region, and may provide better information from these sources.**

**In the meantime, preliminary analysis of five flights in the BPA area from 2001 through early 2003 exhibited a discrepancy between ambient observations and the emissions inventory for terminal olefins similar to the analysis results of Houston flights. However, since there is much less scientific evidence for BPA compared to Houston, the commission does not believe there is sufficient justification to impute the BPA inventory. This is further supported by ambient air monitoring data showing NO<sub>x</sub>-limited conditions in BPA. The ISC dispersion model was used to predict terminal olefin concentrations from industrial point sources at locations where plumes were observed by the aircraft for the Houston and Beaumont-Port Arthur flights. The ISC-predicted concentrations were compared to the reported inventory emission rates (molar representations) in order to estimate the discrepancies. This method allows for the analysis of many years' worth of data within a reasonable time period. It takes into account dispersion on pollutants emitted, and therefore can be used to compare ambient measurements with reported emission rates.**

**In addition, thirteen flights were flown in the BPA area during the fall of 2003 to examine the industrial areas. However, that data has not yet been analyzed, and it is not possible at this time to use this information to determine the adequacy of the reported inventories. There have been no TCEQ-commissioned flights in the BPA area in 2004, but the agency is reviewing flight plans weekly and may add flights to the BPA area as appropriate.**

Sierra-Lone Star commented that another concern with the BPA EI Summary is that the only proposed VOC reductions from 2000 to 2007 are for the two smallest VOC categories: area/nonroad mobile sources and onroad mobile sources. The August 30, 2000 base case EI summary shows VOCs from area/nonroad mobile sources with an estimated 35 TPD and

projected in 2007 to have 34 TPD, a decrease of 1 TPD. In addition, the August 30, 2000 base case EI summary shows VOCs from onroad mobile sources with an estimated 20 TPD and projected in 2007 to have 11 TPD, a VOC decrease of 9 TPD. Biogenic VOCs are projected to be at the same VOC levels at 603 TPD in 2007. Overall, TCEQ projects all BPA VOCs to drop from 726 TPD in 2000 to 716 TPD by 2007 for a net decrease of 10 TPD. Excluding biogenic VOCs which can not be practically addressed, the 10 TPD decrease in VOCs from the other manmade sources is only about a 1.4% reduction over the three county BPA region of such sources. Yet the major point VOC sources remain the same at 68 TPD, even though they are the primary sources of HRVOCs which contribute most significantly to ozone episodes in the BPA region.

**TCEQ staff agrees that the summaries in Chapter 2, Section 2.8 contain the above information. However, Sierra-Lone Star states that the emission reductions are only 1.4% of the anthropogenic emissions. In fact, the reduction in anthropogenic emissions is:**

**$((726-603)-(716-603))/(726-603)=8.1\%$ .**

**With respect to emission reductions, modeling generally shows that BPA is a NO<sub>x</sub>-limited area, so the primary focus of control has been on NO<sub>x</sub> emissions. In addition, the commission has proposed to incorporate certain voluntary emissions reductions, air monitoring improvements, and other actions which six companies in the BPA area have agreed to make. The staff has also filed Agreed Orders, signed by each of the affected companies, which would make the voluntary measures enforceable. These Agreed Orders are scheduled for adoption by the commission on December 15, 2004. See <http://www.tnrcc.state.tx.us/oprd/sips/beaumontportarthur.html> for further information.**

Sierra-Lone Star commented that further errors occur where the BPA emissions inventory analysis relies on inserting arbitrary correction factors (via “imputation”) to account for unreported VOC and HRVOC (such as ethylene, propylene, 1,3-butadiene, etc.) emissions. This issue underscores the systematic and significant underreporting of air pollution emissions from large industrial point sources. This impugns both the emissions inventory and the TCEQ enforcement process.

Sierra-Lone Star commented that the TCEQ’s modifications to the emissions inventory to address HRVOC issues allows, according to the 2004 BPA SIP, “much more flexibility in control strategy modeling.” The 2004 BPA SIP should model all control strategies using the previously assumed and more realistic estimates of actual emissions reductions effectiveness. This information may be effective in identifying additional control strategies, through its RACM analysis, that could advance the date of attainment and/or provide a margin of safety.

**The TCEQ’s modifications to the emissions inventory are adjustments to HRVOC levels in HGB. The referenced modifications provide better estimate olefin emission adjustments in a more refined manner. Individual species were adjusted, rather than a single**

**representative species. Therefore, controls aimed at HRVOC species would be more accurate than under the previous methodology. These inventory adjustments are supported by ambient data collected during the TXAQS2000. This method of imputing emissions in HGB should have very little effect on control strategies in BPA.**

Sierra-Lone Star commented that upset and other unpermitted emissions should be estimated and integrated into the 2004 BPA SIP. In Texas, these emissions are routine and thus may be inserted into the 2004 BPA SIP. Unfortunately, the proposed 2004 BPA SIP appears to be grossly lacking and deficient in addressing the issue of major point source upset events and other unpermitted emissions from flares, cooling towers, process vents, fugitives, and other plant areas.

Sierra-Lone Star also commented that the 2000 episode days must incorporate actual upset, malfunction, startup/shutdown emissions from the period in question, which they do not do. TCEQ has no solid field data on the under-reported VOC emissions from BPA plants for the year 2000.

**The commission disagrees with the commenter. In addition, the commission performed a special hourly inventory during the TexAQS 2000. Emission event information was collected from sources in BPA and HGB. As described in Chapter 3 of the BPA Attainment Demonstration SIP, episode-day and hour-specific point source emissions data were collected by surveying the largest sources of NO<sub>x</sub> and VOC emissions in the HGB and BPA areas to account for specific operating conditions, upsets, start-ups, and shutdowns during the TexAQS 2000 study period. Sources emitting at least 250 tons per year of non-methane organic compounds (NMOC) or 1000 tons per year of NO<sub>x</sub> were requested to participate in the survey. The largest 83 TCEQ accounts in the combined eleven-county HGB and BPA nonattainment areas were queried. Special Inventory data for 12 accounts in BPA were incorporated into the base case modeling episode. For additional information on the Special Inventory see Appendix D, “Point Source Modeling Inventory Development.”**

Sierra-Lone Star commented that it supports the continued NO<sub>x</sub> reductions referenced in the BPA EI Summary (31 TPD from 2000 to 2007, a 15% decrease). NO<sub>x</sub> reductions are for major point sources and onroad mobile sources. The August 30, 2000 base case EI summary shows NO<sub>x</sub> from major point sources dropping 10 TPD (8.5%) from 119 TPD to 109 TPD, while onroad mobile sources drops by 27 TPD from 51 TPD to 24 TPD.

**The Commission appreciates the Lone Star Chapter of the Sierra Club’s support of the proposed NO<sub>x</sub> emission reductions in BPA.**

Sierra-Lone Star commented that the use of only 2000 episodes and “ported” emissions inventories based on that singular emissions inventory creates the potential for a small problem in emissions inventory to have major significance in modeling future attainment.

**The commission disagrees with the commenter. The emissions inventories developed by the commission for modeling undergo rigorous quality assurance reviews, and are some of the most detailed inventories for SIP preparation in the nation. The inventories follow all of the prescribed emissions inventory development methodologies, and are vastly superior to what is recommended in EPA Guidance. In addition, the commission collected episode-day and hour-specific point source emissions data by surveying the largest sources of NO<sub>x</sub> and VOC emissions in the BPA area to account for specific operating conditions, upsets, start-ups and shut-downs that cover the modeling period. While the commission agrees that inventories may be under-reported, it is not possible to state definitively at this time the magnitude of under-reporting. However, the commission is using the best information that is currently available.**

**The commission will continue to evaluate new data and new approaches to photochemical modeling as they become available, and will strive to make improvements to existing models and input data in a timely manner.**

Golden Pass LNG Terminal LP and Golden Pass Pipeline LP requested that emission estimates from construction and operation of its planned liquefied natural gas marine import terminal and pipeline in the BPA nonattainment area be accounted for in the SIP. The commenters requested a draft General Conformity Determination demonstrating that the referenced project will comply with the requirements of the federal General Conformity Rule and the Texas SIP.

**The commission appreciates the advance notice and has included the project's estimated future construction and operation emissions in the SIP, resulting in a conditional general conformity certification. The commission also notes the project sponsors commit to the following:**

- **encourage construction contractors to participate in the Texas Emission Reduction Plan (TERP) grant program and to apply for TERP grants,**
- **establish bidding conditions to give preference to "Clean Contractors,"**
- **direct, through provisions included in its construction contracts, construction contractors to exercise Best Management Practices relating to air quality,**
- **encourage construction contractors to use appropriate low emission fuels, and**
- **purchase and retire 48 tons of NO<sub>x</sub> Emission Reduction Credits prior to commencement of operations.**